

Faculty First and Last Name	Department	What is the general research problem or project that the student will be completing under your mentorship? e.g. how does transgenerational epigenetic inheritance affect metabolic disease risk?; Which support systems provide better outcomes for people with traumatic brain injury? Creation of independent learning modules for course	What specific question will the student addressing during their rotation, and can it be completed during the rotation? e.g Does thermoneutrality enhance the effect of high fat diet on glycemia in mice? What is the population with TBI in Worcester? How can we advance students' self-directed learning using technology?	What type of study (e.g. cross-sectional case-control study, longitudinal cohort study, clinical trial, model system (e.g. cells, mice, worms, flies, etc)) will the student be working on? What is the implementation plan for curricula?
Jillian Richmond	Dermatology	What drives autoimmune skin diseases, and can we target these pathways for new treatments?	Using flow cytometry and gene expression data, can we identify patterns of inflammation shared across diseases to facilitate drug repurposing?	The student will learn FlowJo software and/or NanoString analysis software to analyze datasets generated by the lab. The student will be trained by Dr. Richmond and/or lab members well-versed in the techniques, and will meet weekly w Dr. Richmond. Additionally, we have 1h weekly lab meetings to go over everyone's progress and to help everyone move on to the next steps of their projects (each lab member presents for approx 10-15min). This also facilitates collaboration between lab members, which has worked well for RCE students in previous years.
Elizabeth Schoenfeld, MD, MS	Emergency Medicine, Baystate Medical Center	We will be interviewing patients with Opioid Use Disorder in order to better create systems to prescribe buprenorphine from the Emergency Department.	Because of COVID, the exact phase of this study may vary from the current plan. We have interviewed physicians about prescribing buprenorphine and we will start interviewing patients shortly. We are creating systems, such as shared decision-making tools, to facilitate the prescription of buprenorphine in the ED. Students should check in with the PI for more details.	This study will involve decision aid development, implementation science, and qualitative methods. It may involve some design of a randomized controlled trial. Educational materials regarding methods will be provided to students with the expectation that they will learn about the methods they will be using.
Marcus Ruscetti	MCCB	Identifying new targeted and immunotherapies for castration-resistant prostate cancer using mouse modeling and screening approaches.	Can inducing a tumor suppressive program called cellular senescence through cancer therapy potentiate immune surveillance and enhance immunotherapy efficacy in castration-resistant prostate cancer (CRPC)?	We will take three different approaches to address this question: 1) Using innovative and disease-relevant mouse models of prostate cancer to understand the impact of senescence on anti-tumor immunity and immune checkpoint blockade inhibitor efficacy. 2) Conducting chemical screening in prostate cancer mouse and human cell lines to identify new senescence inducing therapies 3) Leveraging access to publicly available human data and prostate cancer specimens through the UMMS Biobank repository to understand differences in immune surveillance in distinct genetic and histological prostate cancer subtypes.
Elaine (Teng-Ting) Lim	Program in Bioinformatics and Integrative Biology	We will like to understand the genes that influence viral entry by HSV-1 and the cell types in the brain that are important for viral entry, by using human cerebral organoids as a model system. In parallel, we have been using patient-derived induced pluripotent stem cells from individuals with or without Alzheimer's Disease (AD), to understand the contribution of viral infection through HSV-1 on AD.	The specific question that the student will be addressing is, which human genes can lead to increased HSV-1 viral entry in induced pluripotent stem cells (iPSCs) using a genome-wide CRISPR/Cas9 screen? Eventually, we will like to compare the genes that influence HSV-1 entry in iPSCs can similarly influence HSV-1 entry in different cell types found in cerebral organoids. Using iPSCs for a start will allow the student to complete the project within 4-8 weeks. Through this project, the student will gain exposure to various technologies such as iPSC cell culture, CRISPR/Cas9 editing, FACS sorting, next-gen sequencing library preparation and sequence analysis.	The student will be working on a genome-wide CRISPR library screen in induced pluripotent stem cells. The project will involve FACS sorting and next-generation sequencing to quantify the mutations in genes upon HSV-1 infection. My group's research assistants can work alongside with the student to guide the student on specific experiments that we had already optimized in our group. The student will also benefit from quantitative genomics training in learning to analyze next-gen sequencing data.

Faculty First and Last Name	Department	What is the general research problem or project that the student will be completing under your mentorship? e.g. how does transgenerational epigenetic inheritance affect metabolic disease risk?; Which support systems provide better outcomes for people with traumatic brain injury? Creation of independent learning modules for course	What specific question will the student addressing during their rotation, and can it be completed during the rotation? e.g Does thermoneutrality enhance the effect of high fat diet on glycemia in mice? What is the population with TBI in Worcester? How can we advance students' self-directed learning using technology?	What type of study (e.g. cross-sectional case-control study, longitudinal cohort study, clinical trial, model system (e.g. cells, mice, worms, flies, etc)) will the student be working on? What is the implementation plan for curricula?
Giorgio Giatsidis	Division of Plastic Surgery, Department of Surgery	<p>Projects are commonly identified, discussed, and chosen WITH the student to make sure their own interests, short-term/long-term goals, and skills are best valued.</p> <p>The overarching goal of our team is to teach students how to correctly do research, refine their skills, and nurture their skills so that they can apply them in the future to any research question.</p> <p>There is wide variety of topics we are able to cover and accommodate. Our team works on the entire range of scientific research, from bench and animal work to educational research, database research and clinical work. We are a Plastic Surgery research team so our focus is on everything related to Plastic Surgery, which is more than you might think! Our areas of investigation and interest also span and include innovative methods to improve surgical education of medical students/residents/fellows, surgical techniques and surgical outcomes, diversity and inclusion in plastic surgery, global plastic surgery & surgical care in low resources settings, tissue engineering e regeneration, medical device development, etc. You can read more here: https://profiles.umassmed.edu/display/20599155</p> <p>Last year we hosted 5+ students: all projects have had great progress, one of them has already -in less than 6 months- got his work accepted as first author in the most important journal in Plastic Surgery, one work lead to an invention disclosure, and 2 abstracts were accepted at outside conferences.</p>	<p>See notes above/below, the questions will depend on the project chosen. In general, the PI will work with and supervise/mentor the student through all the phases of research from identifying a problem worth addressing, to critical review of literature, study design (hypothesis, aims, endpoints, methods), study conduction, data analysis and interpretation, project review, manuscript drafting, publication and presentation.</p> <p>It is expected that each student will have his/her own project and will lead the effort on it. The work is expected to result in a peer-review publication with the student being the first author.</p> <p>As we did last year, in addition to 1-to-1 mentoring we plan to have dedicated weekly educational sessions focused on the various aspects of conduction of research ("how to design a study" "how to write a manupript" "how to make a poster presentation" "how to make an effective podium presentation" etc.).</p> <p>Given the uncertainties caused by the COVID-19 pandemic, we will tailor the work so that it can be effectively and safely be conducted remotely if possible and -when not possible- in the most ideal conditions.</p>	<p>Per notes above, will depend on the type of study. Our focus is the student, not the research and the aim is to have the student LEAD and LEARN the entire process of research, noy just providing some side technical help.</p> <p>Realistically, it is impossible to meaningfully cultivate a research project in 4 weeks, so it is expected that although the student will start the work in those 4 weeks, he/she will continue it afterwards.</p> <p>Different studies have different timelines and pace. Wet-lab research is usually slower (we currently work with rats and pigs), dry-lab research (including clinical and educational studies) commonly faster. Clinical trials are probably the one that take longer.</p> <p>We can work on this with you and tailor plans based on interests, goals, and expectations.</p>
David Lally	Ophthalmology Retina Baystate	<p>Opportunity to investigate the structural imaging findings in the natural history of the advanced form of age-related macular degeneration called geographic atrophy. Student will evaluate the spectral-domain optical coherence tomography longitudinal findings in patients with geographic atrophy. Additionally, the precursor retinal findings to geographic atrophy on SD-OCT will be explored.</p>	<p>What are the identifiable structural patterns in the natural history of geographic atrophy and what precursor findings can predict geographic atrophy progression?</p>	<p>longitudinal cohort</p>
Yingleong (Rigel) Chan	Neurology	<p>How does inherited genetic variation influence human disease phenotypes in-vitro? Can cells from a population of many different individuals be used for discovery and treatment of a genetically complex diseases, e.g. Alzheimer's</p>	<p>To what extent induced pluripotent stem cells from a population of different individuals can be differentiated into neurological tissue types like microglia, astrocytes, oligodendrocytes, etc?</p>	<p>The study would be the use of an in-vitro model system (population of human cell lines) to model genetically complex human diseases.</p>
Ralph E. Spada, MD, FACP	General Internal Medicine	<p>We are studying the relationship of air quality on ischemic heart disease mortality</p>	<p>How have the levels of PM10 and 2.5 been effected over the past year due to the COVID-19 pandemic and the reduction of motor vehicle use</p>	<p>Observational survey, plan to incorporate environmental factors in an enhanced cardiac risk estimation</p>

Faculty First and Last Name	Department	What is the general research problem or project that the student will be completing under your mentorship? e.g. how does transgenerational epigenetic inheritance affect metabolic disease risk?; Which support systems provide better outcomes for people with traumatic brain injury? Creation of independent learning modules for course	What specific question will the student addressing during their rotation, and can it be completed during the rotation? e.g Does thermoneutrality enhance the effect of high fat diet on glycemia in mice? What is the population with TBI in Worcester? How can we advance students' self-directed learning using technology?	What type of study (e.g. cross-sectional case-control study, longitudinal cohort study, clinical trial, model system (e.g. cells, mice, worms, flies, etc)) will the student be working on? What is the implementation plan for curricula?
Raffi Aroian	Program in Molecular Medicine	Autoimmune diseases are on the rise in the developed world but are largely absent from the developing world. It is thought that helminth parasitic infections are important components of this protection seen in the developing world. The aim of this project is to explore this.	Can helminth products be used to protect mice from multiple sclerosis?	Induction of MS in mice followed by introduction of helminth products demonstrated to be antiinflammatory in a macrophage model of inflammatory responses.
JeanMarie Houghton	Medicine, Gastroenterology	This year the school is revamping the entire medical school curriculum. Our school has embarked on a bold process of Curriculum ReVolution. This involves an 18-month single-pass Foundations curriculum that fully integrates all disciplines and spans across 9 blocks. I am assuming responsibility for the gastroenterology portion of the training. The content of the required sessions is fairly standard, however we are exploring novel and innovative ways to deliver the material which will include short video instructional sessions, interactive case studies and question based learning. Feedback and participation of students is crucial in creating an effective, enjoyable and efficient curriculum.	this is a curriculum design project	our school has embarked on a bold process of Curriculum ReVolution. This involves an 18-month single-pass Foundations curriculum that fully integrates all disciplines and spans across 9 blocks. Our goal is to implement the first phase of this new curriculum in August 2021 with the GI portion likely being in the spring however that is not yet solidified.
David Ayers	Orthopedics	The continued data collection of the FORCE-TJR-Function and Outcomes Research for Comparative Effectiveness in Total Joint Replacement (FORCE-TJR) study would like to better understand the clinical and surgical factors, specifically varying total hip replacement (THR) and total knee replacement (TKR) approaches and peri- operative care that may impact patients' functional outcomes. Abstracting data from TJR patients' operative notes would help in the development of functional trajectory information for varying THR and TKR approaches. Students' Role: The student will assist in this national research study. Daily work will include: understanding the emerging importance of collecting PROs including data entry of patient surveys; training in appropriate data collection and abstraction of operative notes from FORCE-TJR registry participants due to adverse events, as well as exposure to patient retention calling.	With the assistance of Dr. David Ayers, the student will formulate a specific question that can be completed during the rotation.	Longitudinal cohort study
Alexandra Wink	Radiology	Anatomy faculty observe medical students using Google Image to view anatomical structures in the anatomy laboratory in lieu of official course resources (e.g., textbooks and atlases). The educational quality of these image search results is not clear; thus, this study examines the sources and quality of the images found in search results for anatomical structures.	How do we categorize the websites that publish the top image search results for anatomical structures? Are the image search results of anatomical structures relevant, accurate, and complete?	This is a qualitative analysis of image data.

Faculty First and Last Name	Department	What is the general research problem or project that the student will be completing under your mentorship? e.g. how does transgenerational epigenetic inheritance affect metabolic disease risk?; Which support systems provide better outcomes for people with traumatic brain injury? Creation of independent learning modules for course	What specific question will the student addressing during their rotation, and can it be completed during the rotation? e.g Does thermoneutrality enhance the effect of high fat diet on glycemia in mice? What is the population with TBI in Worcester? How can we advance students' self-directed learning using technology?	What type of study (e.g. cross-sectional case-control study, longitudinal cohort study, clinical trial, model system (e.g. cells, mice, worms, flies, etc)) will the student be working on? What is the implementation plan for curricula?
Kimberly Fisher	Medicine	<p>The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and associated coronavirus disease 2019 (COVID-19) have been devastating. On December 11th the FDA issued an emergency use authorization for the Pfizer-BioNTech COVID-19 vaccine. Clinical trials show vaccine efficacy of 95%, offering hope that it will be possible to control the pandemic and return to "normal" life in 2021. However, a return to normalcy requires not only an effective vaccine, but also widespread uptake by the population. Studies published by our team and others indicate that a significant proportion of adults in the US may not accept a vaccine against COVID-19, highlighting the urgent need to identify strategies to optimize vaccine uptake.</p> <p>The goals of this project are to: (1) gain an in-depth, current understanding of factors influencing vaccine hesitancy in vulnerable populations; and (2) develop and test messages that address concerns of vaccine-hesitant subgroups at risk for declining to be vaccinated.</p>	<p>The role of the student during this rotation will be to assist with data analysis which will include coding the qualitative data (open-ended responses), contributing to the quantitative data analysis, and drafting a manuscript of the findings. The specific questions to be addressed will include: (1) what factors are associated with COVID-19 vaccine hesitancy; (2) what are the most common concerns and questions of COVID-19 vaccine hesitant individuals; and (3) which healthcare provider messages about COVID-19 vaccination are most effective at increasing intent to be vaccinated?</p> <p>Because data collection and cleaning for this project will be completed in advance of the student joining our group during Summer 2021, the above questions can be completed during the rotation.</p>	<p>This is an experimental survey that will be conducted via an online research participant panel.</p>
Richard Perugini	General Surgery	<p>The impact of sleeve gastrectomy on gastroesophageal reflux disease (GERD), specifically factors that predict new or worsened GERD post-operatively as well as factors that predict remission of GERD post operatively. Also, are there pre-operative screening tools that help improve outcomes (ie upper GI series, pH study, and manometry)? Also, to look at if there are technical issues that predispose a patient to GERD (ie unrecognized vs unrepaired hiatal hernia, mid body stenosis of a sleeve, retained fundus).</p>	<p>The questions they will be answering are: 1) What pre-operative assessments are useful with regards to GERD in bariatric surgery patients? 2) What modifiable factors predict worsening GERD or remission of GERD?</p> <p>This question can be completed during the rotation.</p>	<p>Longitudinal cohort study.</p>
Richard Perugini/Nicole Cherng	General Surgery	<p>Type 3 and 4 paraesophageal hernia repairs are performed for gastroesophageal reflux, dysphagia, or acute gastric volvulus. These hernias have a incidence of recurrence of at least 10%. The project will be to develop a registry including a video library to look at outcomes following paraesophageal hernia repair. Specifically - (1) perioperative complications, (2) readmissions, and (3) long term outcomes.</p>	<p>(1) Are there modifiable factors that can predict peri-operative complications and long term outcomes after paraesophageal hernia repair? (2) Can video assessment allow for prediction of possible short and long term complications?</p>	<p>Longitudinal cohort study.</p>
Elizabeth Peacock-Chambers	UMMS-Baystate Pediatrics	<p>How do we increase access to an evidence-based parenting program for mothers in recovery from substance use disorders?</p>	<p>Can we develop a train-the-trainer model for the evidence-based intervention in order to increase our capacity to scale the intervention at the state level through collaboration with the Department of Public Health.</p>	<p>Pilot clinical trial.</p>
Mai K ElMallah	Pediatrics	<p>How does AAV gene therapy improve respiratory function in Duchenne Muscular Dystrophy?</p>	<p>How is the diaphragm muscle integrity improved with AAV gene therapy?</p>	<p>Mouse study</p>
Gail March Cohen, Ph. D.	Office of Undergraduate Medical Education	<p>The summer student will research topics and educational approaches needed to produce online educational modules to prepare residents, fellows, non-faculty instructors, and advance medical students to teach UMMS students?</p>	<p>What important topic and educational approach is needed to prepare residents, fellows, non-faculty instructors, and advance medical students to teach UMMS students?</p>	<p>The outcome of the mixed study research will be to develop one online educational module to be posted in the OUME Educators Development Program website.</p>

Faculty First and Last Name	Department	What is the general research problem or project that the student will be completing under your mentorship? e.g. how does transgenerational epigenetic inheritance affect metabolic disease risk?; Which support systems provide better outcomes for people with traumatic brain injury? Creation of independent learning modules for course	What specific question will the student addressing during their rotation, and can it be completed during the rotation? e.g Does thermoneutrality enhance the effect of high fat diet on glycemia in mice? What is the population with TBI in Worcester? How can we advance students' self-directed learning using technology?	What type of study (e.g. cross-sectional case-control study, longitudinal cohort study, clinical trial, model system (e.g. cells, mice, worms, flies, etc)) will the student be working on? What is the implementation plan for curricula?
Hugh Silk	Family Medicine and Community Health	Oral health (OH) issues are the most prevalent diseases in the US. UMMS respects this and two-years ago OH was expanded within the curriculum and included in most courses. What we don't know is how students are performing around OH materials and how students are rating the OH curriculum. This project will review all UMMS courses during the first four-weeks of the summer including emailing, phoning, and zooming with course leaders to review course content and evaluations. The summer student, working with our research team, will update our map of the OH curriculum and create tables of student proficiency on test questions and course content feedback. Evaluations may include how students did on the OH portion of the PD1 full exam test and multiple-choice questions in Anatomy or OSD. The second four weeks will include offering course leaders a "tweak" of their course content and student evaluations as needed.	To assess how students are performing on evaluations in courses at UMMS that teach oral health issues; and assess student evaluations of these oral health teachings.	Systemic review of UMMS curriculum with regards to oral health content.
Xiaoduo Fan	Psychiatry	How can assertive community-based treatment improve health and quality of life outcomes for individuals with serious mental illness?	Can community-based interventions or programming such as drama therapy or exercise and nutritional education improve psychiatric symptoms and lifestyle behaviors in individuals with serious mental illness?	longitudinal cohort study
Yu Chen	Radiology	The overall goal of this study is to evaluate the feasibility to use an optical imaging device (OCT) to evaluate the transplant kidney viability. If successful, this method can aid in accepting a suitably matched donor kidney for the recipient, choosing an optimal induction and maintenance immunosuppression regimen, as well as monitoring and adjustment of treatment post transplantation to reduce the risk of harmful side effects but maximize the life of the graft.	The main research question for this project is to determine the correlation between the morphometric parameters (such as renal tubular density and diameter) determined by OCT with the clinical outcome of the transplanted kidney. The students will perform imaging of the transplant kidney, analyze the images, and compare the optical measurement data with the clinical outcomes.	We will work with human transplant kidney samples. The students will learn how to use OCT and analysis algorithm in the first week, and then image the samples in the following weeks.

Faculty First and Last Name	Department	What is the general research problem or project that the student will be completing under your mentorship? e.g. how does transgenerational epigenetic inheritance affect metabolic disease risk?; Which support systems provide better outcomes for people with traumatic brain injury? Creation of independent learning modules for course	What specific question will the student addressing during their rotation, and can it be completed during the rotation? e.g Does thermoneutrality enhance the effect of high fat diet on glycemia in mice? What is the population with TBI in Worcester? How can we advance students' self-directed learning using technology?	What type of study (e.g. cross-sectional case-control study, longitudinal cohort study, clinical trial, model system (e.g. cells, mice, worms, flies, etc)) will the student be working on? What is the implementation plan for curricula?
Heather-Lyn Haley	Dept Family Medicine and Community Health	The Population Health Clerkship (PHC), formerly the Community Health Clerkship, has been a hallmark of UMMS medical education since the school's founding. It has undergone changes over the decades and with COVID demanding teaching and learning adjustments in the autumn of 2020, additional changes were sought again. Going forward, the PHC needs to identify ways to incorporate selected new elements developed by necessity for 2020 and determine which should remain, which revised, and which deleted. A limited number of self-directed learning opportunities begun as a result of remote learning need to be augmented. In addition, as remote and in-person learning are likely blended in the autumn of 2021, the clerkship must identify experiential opportunities that strengthen its service-learning pedagogy to include a health equity and advocacy focus while linking explicitly to social determinants of health.	The student will work with members of the interprofessional PHC steering committee to review particulars of this summer curriculum project. Specifically, the student will: <ul style="list-style-type: none"> •develop Teams structure online to improve PHC communication •build shared calendar of relevant material/presentations •reach out to community clerkship leaders to review further anticipated clerkship changes, particularly the inclusion of a health equity lens and advocacy approach •communicate with faculty re faculty development opportunities, building on the PURCH/BERST program and ensuring a Health Equity Lens threads through the clerkship •strengthen assignments, particularly the reflection component and the service elements with identifiable outputs/outcomes/impact; develop an outline of ideas and examples to solidify service projects •develop several self-directed learning modules relevant to exploring a population's health through a health equity lens •organize presentation day: establish themes areas, identify and secure judges, promote the day •construct PHC presentation day Bingo for first year students 	The student will meet with steering committee members to gain an understanding of the changes that were made in the 2020 PHC b/c of remote learning requirements. Working and meeting regularly with steering committee members throughout the month, during Week One, the student will review student and community leader feedback regarding the modified 2020 PHC and begin clarifying ways in which a health equity and advocacy lens can be brought to each clerkship's population of focus; review selected presentations from the 2020 PHC. Week Two, the student will ensure that all 25-30 small group clerkships have supplemental material needed for students to understand ways they can bring an advocacy voice to advancing health equity and update small group community leader guidance material. Weeks Three and Four, the student will develop relevant self-directed learning materials that feature a health equity and advocacy lens applied to population health; draft options for end of clerkship presentations, identifying judges and ensuring all materials are posted on BBL; and review evaluation materials for completeness. At the conclusion of Week 4, the student will meet with the steering committee members to summarize the month's work.
Suzanne Cashman	Dept Family Medicine and Community Health	The Population Health Clerkship (PHC), formerly the Community Health Clerkship, has been a hallmark of UMMS medical education since the school's founding. It has undergone changes over the decades and with COVID demanding teaching and learning adjustments in the autumn of 2020, additional changes were made. With decades of experience implementing this unique clerkship, insights and the value gained from this type of experiential element of medical education have yet to be synthesized, analyzed, and developed into a manuscript suitable for publication. Using data the clerkship has gathered over time, the student will assess the strengths and contributions the clerkship has made to medical education at UMMS and make recommendations for improvements as well as for ways other medical schools could use this model to expand service-learning and experiential learning opportunities for their students.	The specific issue the student will explore through this summer placement will be assessing the "So What?" question related to the PHC. With faculty guidance, the student will use several sources of clerkship evaluation data to determine the contribution the PHC has made to students' overall learning as well as to their specific understanding of population health, advocacy, and interprofessional approaches to care. He/She will also determine the range of service projects students were able to initiate through the clerkship as a result of its using service-learning pedagogy as its foundation. A thorough literature review will form the basis for this research initiative. The aim of the literature review will be to set the results of the PHC into the context of current medical education initiatives, particularly the goal of strengthening community, population, and public health elements.	The student will begin Week 1 with a literature review of community focused experiential medical education initiatives and clarify where the UMMS PHC results will fit into the overall medical education literature. He/She can then move on to describing each of the clerkship teams using metrics that include team focus and interprofessional mix of faculty. During Week 2, the student will review and synthesize clerkship results found in the annual evaluations from the students and the community partners. He/She will also review the evaluation tool's open ended questions related to the clerkship's interprofessional aspect as well as to its bias and equity elements. The student will begin Weeks 3 and 4 by reviewing the clerkship presentations and then move on to drafting the manuscript. During these weeks, PHC steering committee members will augment their regular and ongoing guidance by reviewing and providing prompt feedback to the student regarding the manuscript so that it is ready for submission by the end of the summer.

Faculty First and Last Name	Department	What is the general research problem or project that the student will be completing under your mentorship? e.g. how does transgenerational epigenetic inheritance affect metabolic disease risk?; Which support systems provide better outcomes for people with traumatic brain injury? Creation of independent learning modules for course	What specific question will the student addressing during their rotation, and can it be completed during the rotation? e.g Does thermoneutrality enhance the effect of high fat diet on glycemia in mice? What is the population with TBI in Worcester? How can we advance students' self-directed learning using technology?	What type of study (e.g. cross-sectional case-control study, longitudinal cohort study, clinical trial, model system (e.g. cells, mice, worms, flies, etc)) will the student be working on? What is the implementation plan for curricula?
Lela Giannaris, PhD	Radiology, Division of Translational Anatomy	This project involves the creation of an independent learning module (ILM) for the anatomy component of the DSF course. Faculty will collaborate with the student to oversee the design, implementation and evaluation of the ILM. The student will have the opportunity to shape the direction of the project based on their own experiences with the curriculum. Feedback, creativity and innovative ideas are welcome!		This curricular resource will be implemented in the AY21-22 DSF course.
Mohammad Alkawaldeh	OBGYN	We are working on many clinical problems: Impact of using telehealth and telemonitoring among OBGYN patients. Racial Disparities and Depression Screening and Treatments: A Cross-sectional Analysis of Pregnant and Postpartum Depressed Women Telehealth Visits in Obstetrics and Gynecology During COVID-19 Pandemic Impact of COVID-19 on Prenatal and Postpartum Care (PRISM Sub study Plus) Impact of COVID-19 on Prenatal and Postpartum Care and Access to Mental Healthcare: A Qualitative Study. Racial and Sociodemographic Disparities in Telehealth Access and Utilization During the COVID-19 Pandemic	We started doing qualitative studies for various clinical topics (patient interviews), which can be done during rotation. Also, we do a lot of work on electronic and manual data abstraction from Epic, which can be done through rotation as well.	We do : 1. Cross-sectional studies 2. Qualitative (Phenomenology-Case Study- Content Analysis) 3. Longitudinal Studies 4. Experimental studies
Lawrence Rhein	Pediatrics	The purpose of the proposed retrospective chart review project is to evaluate pediatric sub-specialty follow-up visits and assess health outcomes in the scope of health equity.	Are set follow-up guidelines reducing health care utilization in pediatric patients and timing of visits are equitable to all populations? The students (1-2) will be assigned to one pediatric sub-specialty clinics portion of the retrospective chart review and will review approximately 100 charts. It will be feasible for the student to complete the project in the set time period.	Retrospective Chart Review
Neville Jadeja MD MPH	Neurology	We are evaluating cases of encephalopathy associated with the novel coronavirus. We have defined this condition as clinical and EEG proven encephalopathy in those associated with novel coronavirus infections. We would like to understand the clinical outcomes in these patients. We have an IRB approved database for COVID-19 encephalopathy which we are collecting since the pandemic began in February. This data involves both clinical and EEG variables. We have a graduate student with a public health background assisting with this project and hope to add a medical student as well.	Specific questions to be addressed are the risk factors for covid associated encephalopathy, risk of seizures and status epilepticus in these patients, clinical outcomes including mortality, length of stay and post discharge morbidity. The student will actively participate in strategies to collect and analyze the data. Our data collection is expected to be nearly complete by the time the student joins so they will focus on analysis including statistical methods and interpretation as we attempt to understand this novel entity. It is expected that the student is able to prepare a poster based on their analysis.	Retrospective review study.
Yasmin Carter	Radiology	Currently, there is little to no information on the relative incorporation and accuracy of secondary sex-characteristics in popular anatomical texts and atlases.	Assessing differences in representation of sexes and secondary sex characteristics in medical education texts. Hopefully this project can help highlight disparities that exist in medical education which perpetuate existing clinical biases and unequal health outcomes among these populations	The student will survey the required anatomical texts of all accredited medical schools in North America. The student will then evaluate each for anatomical accuracy and representation of sex and gender. Finally recommendations for improvement and a manuscript for publication will be created.

Faculty First and Last Name	Department	What is the general research problem or project that the student will be completing under your mentorship? e.g. how does transgenerational epigenetic inheritance affect metabolic disease risk?; Which support systems provide better outcomes for people with traumatic brain injury? Creation of independent learning modules for course	What specific question will the student addressing during their rotation, and can it be completed during the rotation? e.g Does thermoneutrality enhance the effect of high fat diet on glycemia in mice? What is the population with TBI in Worcester? How can we advance students' self-directed learning using technology?	What type of study (e.g. cross-sectional case-control study, longitudinal cohort study, clinical trial, model system (e.g. cells, mice, worms, flies, etc)) will the student be working on? What is the implementation plan for curricula?
Susan Hogan and Suzanne Cashman	Family Medicine and Community Health	Understanding the impact of the social determinants of health on individuals and the community is an important component of the medical school curriculum. As the medical communities understanding of these factors and their impact changes, so must our curriculum. The intent of this summer research project will be to up date and improve the SDOH curriculum to meet the needs of students and the patients and communities they will care for.	<ul style="list-style-type: none"> - How can the curriculum be modified to better meet the needs of students so that they can serve their patients and communities in the future? - Is there an opportunity to get students involved in the community in a service learning or research activity? - How can we promote student engagement with this material and help teach advocacy skills? 	The student will be working on curriculum design. There may be opportunity for qualitative research in understanding student perspective on understanding the SDOH.
Tiffany Anne Moore Simas	Obstetrics & Gynecology	Perinatal mental health conditions are the most common complications of pregnancy. They are under-recognized, under-treated, associated with significant negative consequences for perinatal individuals, their offspring, and families, and are a preventable cause of maternal morbidity and mortality. Perinatal psychiatry access programs have been developed to increase the capacity of front-line obstetric providers to address perinatal mental health and substance use disorders. Engaging obstetric providers to utilize these programs is a critical step in the treatment of perinatal individuals, yet how to do this is not well understood. Program outcomes on an individual level are also unknown.	<p>(1) What approaches are utilized to successfully engage medical professionals in new initiatives and to implement new approaches to care</p> <p>(2) What is the clinical effectiveness of perinatal psychiatry access programs (specifically, the Massachusetts program, MCPAP for Moms)? - Among women with perinatal depression (identified in claims data), those exposed to MCPAP for Moms practices will: be more likely to receive behavioral health treatment, be less likely to experience pregnancy-related complications and adverse outcomes (e.g., preterm delivery, low birth weight neonate, maternal/infant mortality), and use fewer non-behavioral-health, non-preventive services (ambulatory, emergency, observational and inpatient admissions).</p> <p>These questions will be partially addressed over the summer. The second question is reliant on getting access to the Public Health Data Warehouse (PHDW) from the MA DPH. Efforts are currently in process.</p>	(1) Scoping versus systematic review (2) Interrupted time-series design
Melissa Fischer	OUME	Students can participate in projects related to curriculum development in areas of interest at iCELS and with the OUME including <ul style="list-style-type: none"> - implicit bias, diversity and inclusion - virtual and augmented reality - mindfulness and DRIVE Initiative - development and implementation of independent learning modules and small group teaching experiences 	Given the variety of topics, we will work with students to identify a component of the work that is of interest to them and fits the timeframe available.	Framework and implementation plans vary depending on the project selected.
Daniel Mullin, PsyD MPH	Family Medicine and Community Health	This project is focused on curriculum development. Specifically, the 8 hour Waiver Course for Massachusetts Students. This course prepares to students to care for patients with Opioid Use Disorder and meets the requirements for students to receive their DATA waiver to prescribe buprenorphine. This course consists of 12 online, asynchronous modules that are being deployed in all 4 Massachusetts Medical schools. The student will review content and provide improvements to the course.	The student will: review modules to ensure functionality, time each module to verify course duration, review scientific accuracy of content and provided updated citations and incorporate new evidence from the peer reviewed literature, develop small group materials to be used in in-person learning sessions that supplement the online content.	The curricula will be deployed for the first time in the spring of 2020, and then again during the 2020-2021 academic year.